eye disease). Transition probabilities and HbA1c-dependent adjustments came from UKPDS and other major studies. Costs of complications came from published sources. Direct costs of diabetes complications and SMBG were projected over patients' lifetimes from a UK National Health Service perspective. Outcomes were discounted at 3.5% annually. Sensitivity analysis was performed. **RESULTS:** Depending on the type of diabetes treatment (diet and exercise/oral medications/insulin), improvements in glycemic control with SMBG improved discounted QALYs by 0.12 ± 0.14 to 0.21 ± 0.14, with increased total costs of £603 ± 909 to £2240 ± 1124/patient, giving incremental cost-effectiveness ratios of £4853 to £10,670/QALY gained, well within current UK willingness-to-pay limits. At a threshold of £30,000/QALY gained, there was a 78–85% probability that SMBG would be considered cost-effective. SMBG was most cost-effective in the subgroup of patients treated with diet and exercise. **CONCLUSIONS:** Improvements in glycemic control with interventions including SMBG improves patient outcomes with an acceptable cost-effectiveness ratio in the UK setting.

DN3

COST-EFFECTIVENESS OF NON-INVASIVE IMAGING IN THE DIAGNOSIS OF PARKINSONISM

Brüggenjürgen B[1], Smala A[2], Chambers M[3]
[1]Charité—Universitätsmedizin Berlin, Institut für Sozialmedizin, Epidemiologie und Gesundheitsökonomie, Berlin, Germany; [2]MERG—Medical Economics Research Group, München, Germany; [3]Health Economics, GE Healthcare, Little Chalfont, UK

OBJECTIVES: Economic evaluations of diagnostic technologies are less well established than for therapeutic technologies. The objective of this study was to undertake a cost-effectiveness analysis in German office-based centres of diagnostic strategies with and without DaTSCAN (123I-FP-CIT) SPECT imaging for patients with clinically uncertain Parkinsonian syndromes (PS) to distinguish between PS and essential tremor (ET), one of the conditions most commonly misdiagnosed as Parkinson's Disease. We report initial analytic results based on office-based expert opinion. **METHODS:** A Markov model was developed to simulate the progression of a cohort of patients with clinically uncertain PS who are managed in an office-based centre based on clinical judgment alone or receiving DaTSCAN. Health states were defined in terms of therapy (PS, ET, none) and underlying conditions (PS, ET). The model estimated time on potentially beneficial therapy (PBT: e.g. PS therapy for underlying PS) and patient management costs over 5 years. Model probability inputs were from published studies and treatment patterns/resource use from a panel of German neurologists. Unit costs were from official sources. The cost of a DaTSCAN test (agent plus administration) was €929. A total of 40–60% cohort members were assumed to have underlying PS. DaTSCAN sensitivity and specificity were 95%/100% (institutional read) and 93%/97% (blinded read). **RESULTS:** At 50% underlying prevalence and in the absence of DaTSCAN, 25% of cohort members had PBT at the outset, rising to 60% at 6 months and 62% at 5 years. Using DaTSCAN, 99% of patients had PBT at the outset reducing to 79% at 5 years. DaTSCAN use generated an incremental 1.4 PB years per patient, and 5-year costs were €795 lower for the DaTSCAN group. **CONCLUSION:** Adding non-invasive imaging to the management of patients with clinically uncertain PS may be considered to be a cost-saving strategy with an increase in time on potentially beneficial therapy.

DN4

PHARMACOECONONOMIC EVALUATION OF SEDATION WITH REMIFENTANIL/PROPOFOL VERSUS MIDAZOLAM/FENTANYL IN THE INTENSIVE CARE UNIT

Muellejans B[1], Matthey T[1], Schill M2, Welte R[2]
[1]Heart Centre Mecklenburg-Vorpommern, Karlsburg, Germany; [2]GlaxoSmithKline, Munich, Germany

OBJECTIVES: Cost-consequence analysis of a RP (remifentanil + propofol) regimen versus a conventional, commonly used MF (midazolam + fentanyl) regimen for sedation of mechanically ventilated postoperative cardiac surgery patients. **METHODS:** We conducted a prospective, single-blinded, randomised cost-consequence study with 80 patients in one German intensive care unit (ICU). The RP group received remifentanil (6- max. 60 µg $kg^{-1}h^{-1}$) and—if sedation at maximal remifentanil dose was insufficient—propofol (0.5–4.0 mg $kg^{-1}h^{-1}$). The MF group received midazolam (0.02–0.2 mg $kg^{-1}h^{-1}$) and fentanyl (1.0–7.0 µg $kg^{-1}h^{-1}$). Direct costs for drugs, material (variable costs only), and staff were considered (hospital's perspective, 2003 prices). Sensitivity and scenario analyses were performed with a decision-analytic model. As the remifentanil dose in the study RP regimen (baseline) was higher than in routine practice we simulated a "routine practice" scenario: We lowered the mean remifentanil infusion rate from 41.2 µg $kg^{-1}h^{-1}$ to 9 µg $kg^{-1}h^{-1}$, increased the propofol infusion rate from 2.2 mg $kg^{-1}h^{-1}$ to 4 mg $kg^{-1}h^{-1}$ and assumed that this scenario would have rendered the same reduction (24%) in staff costs compared to MF regimen and identical material and drug utilisation (except RP) as at baseline. **RESULTS:** Compared to MF regimen, RP regimen (baseline) led to a significantly shorter mechanical ventilation time (3.5 h) and earlier discharge from ICU (18.3 h) and equal average net costs of €1700 for the ICU stay per patient. The routine practice scenario rendered 53% lower RP medication costs than baseline thus yielding net savings of €200 per patient. These results are sensitive to staff and drug cost variations. **CONCLUSIONS:** Analysis indicates that RP regimen dominates MF regimen in the investigated setting as it reduces the mechanical ventilation time and hence the risk of ventilator-associated morbidity at equal costs (baseline) or even savings (scenario).

Clinical Outcomes Studies

CO1

VALIDATION OF DIAGNOSTIC PROCEDURES IN SYMPTOMATIC BENIGN PROSTATIC HYPERPLASIA. CONCORDANCE BETWEEN INITIAL AND FINAL DIAGNOSIS IN DAILY CLINICAL PRACTICE

Carballido J[1], Badia X[2], Gimeno A[3], Regadera L[4], Dal-Re R[5], Guilera M[6]
[1]Hospital Puerta de Hierro, Madrid, Spain; [2]Health Outcomes Research Europe Group, Barcelona, Cataluña, Spain; [3]Hospital General La Mancha, Ciudad Real, Spain; [4]GlaxoSmith Kline, Madrid, Spain; [5]GlaxoSmithKline, Madrid, Spain; [6]Health Outcomes Research Europe, Barcelona, Spain

OBJECTIVE: To assess the usefulness of daily practice diagnostic methods (medical history, I-PSS questionnaire, digital rectal examination (DRE) and prostate-specific antigen (PSA)) for the diagnosis of Benign Prostatic Hyperplasia (BPH). **METHODS:** A total of 363 consecutive patients with suspected BPH seen at urological outpatient clinics, between April and November 2003, participated in the study. The following steps were sequentially followed to define the Initial Diagnosis: 1) medical history; 2) I-PSS questionnaire; 3) DRE; and 4) PSA. It was then compared to the Final Diagnosis (gold-standard) after step 5) urinary sediment, residual volume and prostate size by ultrasonography, and

urinary flow rate. Physician's diagnosis according to their experience, was recorded after each step A descriptive analysis was conducted and validity and concordance were measured between strategies. **RESULTS:** A total of 356 patients, mean age (SD) of 65.2 (8.4) years, with suspected BPH participated in the study. Sensitivity, specificity, positive predictive value and negative predictive value were 91%, 65%, 95% and 50%, respectively. Percentage of agreement and kappa index between initial and final diagnosis were 87.9% and 0.5, respectively. **CONCLUSIONS:** Concordance between initial diagnosis based on medical history, I-PSS questionnaire, DRE and PSA with final diagnosis of BPH was high. This group of diagnostic procedures may be recommended for BPH initial diagnosis in daily practice.

CO2

EARLY GLYCEMIC CONTROL IMPROVES HEALTH AND ECONOMIC BENEFITS IN TYPE 2 DIABETES: A MODEL BASED ANALYSIS

Eddy D[1], Schlessinger L[1], Patwardhan RN[2]

[1]Kaiser Permanente, Oakland, CA, USA; [2]GlaxoSmithKline, King of Prussia, PA, USA

OBJECTIVES: Despite current diabetes guidelines recommending increasingly stringent HbA1c targets, in the US approximately 60% of subjects are not controlled to target HbA_{1c} < 7%, with a typical 5-year delay. The purpose of this analysis was to evaluate the effect of early achievement of glycemic control on diabetes-related complications and costs. **METHODS:** The Archimedes model was used to conduct a simulated clinical trial using patient-specific US NHANES data to determine patient characteristics, current levels of glycemic control and other CAD risk factors in people with diabetes. Subjects with HbA_{1c} > 7% were randomly assigned to four management strategies: status quo (SQ; maintaining current levels of HbA_{1c} but good compliance to guidelines for other CAD risk factors), and reaching mean HbA_{1c} < 7% within 6 months (MO), 12MO, or 24MO. The analysis focused on microvascular outcomes. **RESULTS:** The model predicted that reducing HbA_{1c} to <7% in currently uncontrolled subjects would reduce the risk of microvascular disease compared with SQ. Reaching HbA_{1c} < 7% within 6MO would reduce the 20-year risks of proteinuria (52%), ESRD (44%, approximately 20,000 US cases prevented p.a.), eye surgery (73%) and blindness (73%, approximately 17,500 cases prevented) compared with SQ. However, compared with reaching HbA_{1c} < 7% within 6MO, delaying to 24MO increases these risks by 15%, 16%, 41% and 47%, respectively, resulting in 3900 and 3000 more cases of ESRD and blindness, respectively. Reaching target within 6MO would save approximately $2.3 billion p.a. compared with SQ. Delaying reaching HbA_{1c} < 7% to 24MO decreases these savings by approximately $430 million. Benefits were greater in patients with mean baseline HbA_{1c} > 9%. **CONCLUSIONS:** The Archimedes model predicts that in uncontrolled subjects, achieving HbA_{1c} < 7% within 6MO would have important effects on microvascular outcomes and costs. Delaying control to 24MO would reduce the amount of benefit gained. Bringing currently uncontrolled people into control is important and should be achieved as rapidly as clinically feasible.

CO3

META-REGRESSION ASSESSMENT OF ATOMOXETINE EFFICACY USING RANDOMIZED CONTROLLED ADHD TRIALS

Bae JP

Eli Lilly and Company, Indianapolis, IN, USA

OBJECTIVES: Several trials of atomoxetine for the treatment of attention deficit hyperactivity disorder (ADHD) have employed an active comparator arm of methylphenidate (MPH). This study estimated efficacy of atomoxetine and MPH in treating children and adolescent with ADHD using combined patient-level data from multiple trials. **METHODS:** Five randomized atomoxetine trials contained an active comparator arm of MPH. Pooling of all available data resulted in total 1078 patients, with 562 on atomoxetine, 327 on MPH, and 189 on placebo. Because trials excluded known non-responders to stimulant, stimulant exposed patients may have a bias in favor of MPH. Subgroup analyses were performed by stimulant history. The meta-regression is set up as logistic regression for response. Response was defined as a ≥25% reduction in ADHD Rating Scale. In addition to treatments, patient age, sex, duration of therapy, and trial effects were controlled for. Random effect model was also estimated, but fixed effect was chosen. **RESULTS:** Response rates for stimulant naïve patients were: 70.51% for atomoxetine, 77.27% for MPH, and 41.46% for placebo. Response rate for each active treatment was significant, and significantly different from placebo ($p < 0.001$). However, the two treatments were not statistically different by difference in means test ($p = 0.069$). In the exposed group, response rates were: 62.17% for atomoxetine, 70.03% for MPH, and 29.42% for placebo. Response rate for each active treatment was significant, and significantly different from placebo ($p < 0.001$). Difference between the two treatments, yet again, was not statistically significant ($p = 0.214$). **CONCLUSION:** To improve power and precision in the estimate, this study pooled all available patient-level data from five randomized trials, and estimated response rate using the meta-regression method. Efficacy of atomoxetine and MPH were significantly different from placebo. While response rate was higher for MPH, response rates of the two active treatments were not statistically different from each other.

CO4

A COMPARISON OF LOGISTIC REGRESSION AND COX PROPORTIONAL HAZARDS MODELS FOR IDENTIFICATION OF RISK FACTORS FOR RENAL IMPAIRMENT IN HORMONE REFRACTORY PROSTATE CANCER (HRPC) PATIENTS WITH BONE METASTASES (BM) TREATED WITH ZOLEDRONIC ACID (ZA)

Oh WK[1], Proctor K[1], Nakabayashi M[1], Evan C[1], Tormey LK[1], Breierova L[2], Smith M[2], Neary M[3], Duh MS[2]

[1]Dana-Farber Cancer Institute, Boston, MA, USA; [2]Analysis Group Inc, Boston, MA, USA; [3]F. Hoffmann-La Roche, Ltd, Basel, Switzerland

OBJECTIVE: To identify independent risk factors for renal impairment in HRPC patients receiving ZA, we compared logistic regression and Cox proportional hazards models. **METHODS:** A comprehensive medical record review was performed, using electronic databases and paper records, in a large tertiary oncology center. Inclusion criteria: ≥18 years, actively treated, HRPC with BM, at least one ZA infusion (from 12/1999 to 4/2005), and at least one creatinine reading before and after first ZA infusion. Renal impairment was defined as an increase of ≥0.5 mg/dL and ≥1.0 mg/dL over baseline serum creatinine if baseline was <1.4 mg/dL and ≥1.4 mg/dL, respectively; or any doubling of baseline creatinine. Risk factor analysis was by logistic regression with time adjustment, and by Cox model for time-related binary outcome data. **RESULTS:** Among the 122 eligible patients (mean age = 70.1), mean ZA treatment lasted 367.2 days (mean 10.7 infusions per patient). About 59% of patients discontinued ZA; 21% due to renal complications. Twenty-nine patients (23.8%, 95% CI: 16.2–31.3%) had renal impairment during treatment; this is higher than previously reported in clinical trials. Renal risk increased with extended ZA therapy (<6 months: 22.5%; ≥12 months: 23.5%; ≥24 months: 31.3%) and